

Academic Year: (2023 / 2024)

Review date: 15-07-2023

Department assigned to the subject: Statistics Department

Coordinating teacher: NOGALES MARTIN, FRANCISCO JAVIER

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Statistics and Data Science I (19140)

OBJECTIVES

- Ability to estimate generalized linear regression models with cross-sectional data, as well as to understand and explain the statistical principles underlying the estimations.
- Ability to apply robustness tests to generalized linear regression model estimates.
- Ability to interpret the parameters of a generalized linear regression, obtain predictions and evaluate the goodness of fit.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Generalized Linear Models (GLM)
 - 1.1. Regression models for categorical dependent and independent variables
 - 1.2. Other models for other types of qualitative dependent variables: binary, ordered, multinomial, counting, etc.
2. Generalized Linear Mixed Models (GLMM)
3. Real Life Examples

LEARNING ACTIVITIES AND METHODOLOGY

Training Activities:

- Theoretical-practical classes

Teaching Methods:

- Presentations in the professor's lecture room with computer and audiovisual support, in which the main concepts of the subject are developed and a bibliography is provided to complement the students' learning.
- Resolution of practical cases, problems, etc. raised by the professor, either individually or in a group.

ASSESSMENT SYSTEM

% end-of-term-examination:	50
% of continuous assessment (assignments, laboratory, practicals...):	50
- Participation in class (10%)	
- Developing pieces of work and reports, individually or in group (40%)	
- Final exam (50%)	

With a minimum grade of 5 points over 10 in each assessment activity (both the continuous evaluation and the final exam).

% end-of-term-examination: 50

% of continuous assessment (assignments, laboratory, practicals...): 50

In the extraordinary call, the evaluation system will be as follows:

1) Exam: 100%

BASIC BIBLIOGRAPHY

- Charles E. Mcculloch, John M. Neuhaus Generalized Linear Mixed Models, Wiley, 2014

- G. James, D. Witten, T. Hastie and R. Tibshirani. An Introduction to Statistical Learning with Applications in R, Springer, 2021

- Julian J. Faraway Extending the Linear Model with R: Generalized Linear, Mixed Effects and Nonparametric Regression Models, Taylor & Francis, 2016